WHAT IS CLAIMED IS:

Claim 1.

A sample observation method comprising a step of recognizing the image of an object in the transmission electron beam image of a sample by comparing it with a previously stored reference image;

said sample observation method characterized by further comprising the steps of:

specifying an object in said transmission electron beam image wherein multiple pairs of transmission electron beam images of multiple objects having a different tilt angle with respect to the optical axis are stored as said reference images for said objects;

computing the correlation between said specified object image and said reference image; and

displaying the result of computation.

Claim 2.

A sample observation method comprising a step of recognizing the image of an object in the transmission electron beam image of a sample by comparing it with a previously stored reference image;

said sample observation method characterized by further comprising the steps of:

specifying an object in said transmission electron beam image wherein multiple images formed by polar

coordinate conversion of transmission electron beam images of multiple objects are stored as said reference images;

carrying out polar coordinate conversion of the image of said specified object;

computing the correlation of the images between said specified object image having been subjected to polar coordinate conversion

and said reference image; and

displaying the result of computation.

Claim 3.

The sample observation method according to Claim 2 further characterized in that the transmission electron beam image of said object consists of multiple pairs of transmission electron beam images of the objects having a different tilt angle with respect to the optical axis.

Claim 4.

The sample observation method according to Claim 2 further comprising a step of specifying the fulcrum for rotation in the polar coordinate conversion of said object image, in said transmission electron beam image.

Claim 5.

The sample observation method according to any one

of Claims 1 through 3 further characterized in that said result of computation is displayed in terms of agreement between said object image and said reference image.

Claim 6.

A sample observation method for searching the same objects in multiple objects in the transmission electron beam images of a sample, said method characterized by comprising steps of:

selecting multiple objects in said transmission electron beam images of a sample;

carrying out polar coordinate conversion of each of said selected multiple object images;

specifying one of said multiple objects;

computing the correlation between the image of the specified object subsequent to polar coordinate conversion and the images of other objects subsequent polar coordinate conversion; and

displaying the result of computation.

Claim 7.

The sample observation method according to any one of Claims 1 through 3 further characterized in that the apparatus data at the time of photographing the transmission electron beam image of a sample is stored in a one-to-one relationship with the transmission

electron beam image of said sample.

Claim 8.

The sample observation method according to Claim 7 further characterized in that said transmission electron beam image of the sample is stored as an image of TIFF format containing a tag area, and said apparatus data is stored in said tag area.

Claim 9.

The sample observation method according to Claim 7 further characterized in that the apparatus data stored in said tag area is set on the transmission electron microscope, and the conditions for photographing the transmission electron beam image containing said object are reproduced.

Claim 10. A transmission electron microscope comprising:

an electron gun;

an irradiation lens for applying to a sample the electron beam discharged from said electron gun; and

a controller for storing the electron beam image having passed through said sample;

said transmission electron microscope further characterized in that said controller stores a set of multiple transmission electron microscope images having different irradiation angles of said electron

beam as reference in advance; and

electron beam is applied to said sample to form a set of multiple transmission electron microscope images having different irradiation angles; thereby computing correlation between the set of said multiple transmission electron microscope images and said reference image.

10. A transmission electron microscope comprising:

an electron gun;

an irradiation lens for applying to a sample the electron beam discharged from said electron gun; and

a controller for storing the electron beam image having passed through said sample;

said transmission electron microscope further characterized in that said controller stores a set of multiple transmission electron microscope images having different irradiation angles of said electron beam as reference in advance; and

electron beam is applied to said sample to form a set of multiple transmission electron microscope images having different irradiation angles; thereby computing correlation between the set of said multiple transmission electron microscope images and said reference image.